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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,534	07/29/2003	Yoshikuni Akiyama	0152-0653P	5191

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EXAMINER

ASINOVSKY, OLGA

ART UNIT PAPER NUMBER

1711

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/628,534

Applicant(s)

AKIYAMA ET AL.

Examiner

Olga Asinovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 07/29/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiraki et al U.S. Patent 5,332,784.

The claimed invention is a resin composition containing a graft copolymer obtained by reacting: (a) an amino-group-containing hydrogenated block copolymer, (b) a functional group-containing polyphenylene ether having a functional group selected from the group consisting of a carboxyl group, an acid anhydride group and an epoxy group and/or (c) a functional group-containing polyolefin having any one functional group selected from the group consisting of a carboxyl group, an acid anhydride group and an epoxy group, wherein the amino group-containing block copolymer is obtained by living polymerization process using an organic lithium compound with a cyclic compound having an amino moiety represented by the structure (1) or (2) for each independent claims 1, 2, 3. The independent claims 2 and 3 contain in addition at least one thermoplastic resin (d) and inorganic filler (e).

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Shiraki discloses a terminal-modified block copolymer having an amino group. A block copolymer is styrene/butadiene block copolymer, column 1, lines 13-15 and 63. The method of producing a said block copolymer is a living polymerization in the presence of an organolithium compound, column 7, lines 11-66. The obtained block copolymer is modified by a treating agent capable of reacting with the alkali metal present at the polymer terminal, column 8, lines 27-40. The cyclic urea compounds at column 9, line 53 through column 10, line 10 are readable in applicants' claimed amino-group compound represented by the formula (1) or (2). The terminal-modified block copolymer may be, if necessary, hydrogenated, column 12, lines 13-14. The terminal-modified block copolymer having a terminal amino group is combined with a polar thermoplastic polymer having a functional group, column 16, line 65 through column 17, line 10, and column 12, line 33-35. The polar thermoplastic polymers include polyphenylene ether-type polymer, column 16, line 57 and column 20, line 53. The thermoplastic polymer can include polyethylene-type resins including ethylene-acrylic acid ionomer, column 16, line 31 and propylene-ethylacrylate copolymer, column 16, lines 36. The polar thermoplastic resins such as rubber-modified polymers with unsaturated carboxylic acid, polyamide-type polymers, polyesters, thermoplastic polyurethane-type polymer, polycarbonate-type polymer, polyarylene sulfide-type polymer are readable in applicants' claims 11-16. The electroconductive materials such as carbon black, graphite powder metal powder can be employed, column 3, lines 15-19. Any addition thermoplastic resin would be expected in Shiraki invention.

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Therefore, Shiraki reference discloses the issue of the present invention wherein an amino-group modified block copolymer is reactive with a polar thermoplastic polymer having reactive functional group.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki et al U.S. Patent 5,332,784 in view of Shibuya et al U.S. Patent 4,863,997.

5. Shiraki has been discussed above. The terminal-modified block copolymer can be modified with amino/amide compound, column 9, lines 23-67 and column 10, lines 37. The modified block copolymer may be, if necessary, hydrogenated, column 12, lines 13-14.

6. The difference between the present claims and Shiraki is that the block copolymer is hydrogenated.

7. Shibuya'997 discloses a composition comprising a hydrogenated block copolymer, polyphenylene ether and polyolefin, column 2, lines 44-47. The polyolefin resin can be graft modified with unsaturated comonomers such as (meth)acrylic acid and maleic anhydride, column 3, lines 5-17.

8. It would have been obvious to one of ordinary skill in the art to use a terminal-modified block copolymer having terminal amino group in Shiraki invention and to consider that a said block copolymer is hydrogenated as suggested by Shibuya because the primary reference teaches that "if necessary", the block copolymer may be hydrogenated.

9. Also, it would have been obvious to one of ordinary skill in the art to employ a grafted polyolefin in Shibuya into a terminal-modified block copolymer and the composition of Shiraki invention such that the polar thermoplastic resin (b) is a polyolefin resin having functional carboxylic acid group as suggested by Shibuya, because Shiraki discloses the formation a chemical linkage between the amino-group of the block copolymer and the functional group of the thermoplastic polymer as component (b), Shiraki, column 21, lines 53-65, and any combinations of two or more polar thermoplastic polymer may be used in Shiraki invention, column 21, lines 42-43. The motivation is that it is within the skill of one in the art to recognize that a block copolymer in Shiraki is hydrogenated block copolymer and an additional polar thermoplastic polymer such as an carboxylic acid functionalized polyolefin fro Shibuya is employed in to the composition is Shiraki invention.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art is relevant to show the state of the art knowledge.

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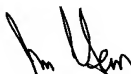
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 571-272-1066. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Olga Asinovsky  
Examiner  
Art Unit 1711

O.A.  
O.A.  
May 19, 2004

  
James J. Seidleck  
Supervisory Patent Examiner  
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